

NAVAL POSTGRADUATE SCHOOL
Monterey, California

*Department of Electrical &
Computer Engineering*

9 August 1996

The Ph.D. Program

Purpose: The Department of Electrical and Computer Engineering of the Naval Postgraduate School offers a program leading to the degree of Doctor of Philosophy (Ph.D.). The goal of the Ph.D. program is to provide the scholastic background and training necessary to do original research in the field of Electrical and Computer Engineering. (For those anticipating an academic career, opportunities to obtain teaching experience are also offered.)

Eligibility: All students of the Naval Postgraduate School are required to be military officers or government employees sponsored by an agency of the US government. Employees of the Naval Postgraduate School are also eligible to pursue degrees on a part-time basis with the approval of their supervisor and the department chairman.

Applications: Students in residence at NPS apply through their curriculum officer. Those applying from outside NPS should contact the Director of Admissions (Code 62) for application procedures.

Screening Procedures: Students desiring to be admitted to the program must successfully pass a written and an oral screening exam. These exams test the student's preparation at the undergraduate level and at the level of introductory graduate courses.

The written examination is the same as the Engineer degree exam and is offered early in the spring and fall quarters. This examination tests the student's preparation at the undergraduate-level courses. The written examination covers the areas of electromagnetic engineering, circuits and electronics, signals and communication systems, computer engineering, and controls. The student chooses four of these five examination areas. A list of topics covered by the written examination may be obtained from the ECE department coordinator for the written screening examination; it is also available on the web at: <http://vislab-www.nps.navy.mil/~mtummala/eeephd/eeewritten>.

The oral examination covers basic concepts from both the undergraduate material and early graduate courses. The oral examination covers the areas of electromagnetic engineering, computer engineering, communications, signal processing, and controls. The student chooses three of these five examination areas. A list of topics covered by the oral examination is available and may be obtained from the ECE department coordinator for the oral screening examination. Further details on the Ph.D. program are available on the web at:

<http://vislab-www.nps.navy.mil/~mtummala/eeephd/phdprog.html>.

An evaluation of the student's academic record and any reference materials are also taken into consideration. The student is formally admitted into the program when the NPS Academic Council approves the establishment of a Dissertation Committee for the student.

Committees: Each candidate will have a Dissertation Committee of at least five members. (The ECE Ph.D. Program Committee Chairman nominates this committee by memo to the Academic

Council after the student successfully completes the screening process.) Three of the members are chosen from the ECE department, one is from the candidate's minor department, and one is from any other department of the School (including ECE) or from another university or appropriate institution. This Committee will provide academic guidance to the student. The student's thesis advisor serves as the chairman of this committee. A temporary thesis advisor will be nominated by the Department Chairman if a permanent advisor has not been identified.

Early Portion of the Program: The student's Dissertation Committee will establish any courses required of the student and any other academic requirements.

Language Requirement: There is no foreign language requirement.

Minor Requirement: The program requires the successful completion of a minor in a department other than Electrical and Computer Engineering. The actual requirements differ among departments, but the general expectation is a level of knowledge that is equivalent to a baccalaureate. A representative of the candidate's minor department shall serve on the candidate's committee and is responsible for determining the minor department's requirements.

Qualifying Exams: When the student is close to completing his/her course work and about to embark on the research phase of his/her program, the Dissertation Committee will administer a qualifying examination. The purpose of this exam is to establish that the student has sufficient scholastic background to properly perform his/her research. The examination must contain both a written and an oral portion, and the Academic Council is invited to send a representative. Following successful completion of this qualifying exam, the student submits a statement of intent describing the research that he or she intends to perform. When all members of the committee agree on this statement and unanimously agree that the student has passed the qualifying exam, a memo (signed by all committee members) is sent to the Academic Council (via the Department Chairman) requesting that the student be "advanced to candidacy"; a copy of the memo is sent to the ECE Ph.D. Program Committee. With approval of this advancement to candidacy the student embarks on the research phase of his/her program.

Research Phase: The student performs the research phase of his/her program in close consultation with his/her thesis advisor, committee members and any other desirable resources. The completion of this phase is marked by the production of a thesis draft that is acceptable to all members of his/her committee.

Defense of Dissertation: The research phase is culminated by an oral presentation of the research results and successful handling of any questions that may arise either from the presentation or from the dissertation. The Academic Council must be invited to send an observer to this defense; a copy of the memo is sent to the ECE Ph.D. Program Committee.

Degree Nomination: The candidate is nominated to receive his/her degree by a memo signed by each member of the Dissertation Committee and by the submission of a signed dissertation to the Office of the Dean of Academic Administration. (This dissertation must meet the format standards of this office to be accepted.) The degree is awarded by vote of the Academic Council and is awarded by the Superintendent at a graduation ceremony (or in absentia).

Time Estimates:

- **Preparatory phase** — depends on student's background.
- **Screening exam** — at conclusion of introductory graduate courses or after award of MSEE degree.
- **Advanced courses** — as determined by the Dissertation Committee, typically one additional year after completion of Master's degree.
- **Minor requirement** — courses and examinations as required by minor department, depends on student's background and choice of minor
- **Qualifying exams** — near end of advanced course program.
- **Research phase** — typically one to three years.
- **Defense of dissertation** — at completion of research.
- **Award of degree.**